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# SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE



High Heat

See Page 329

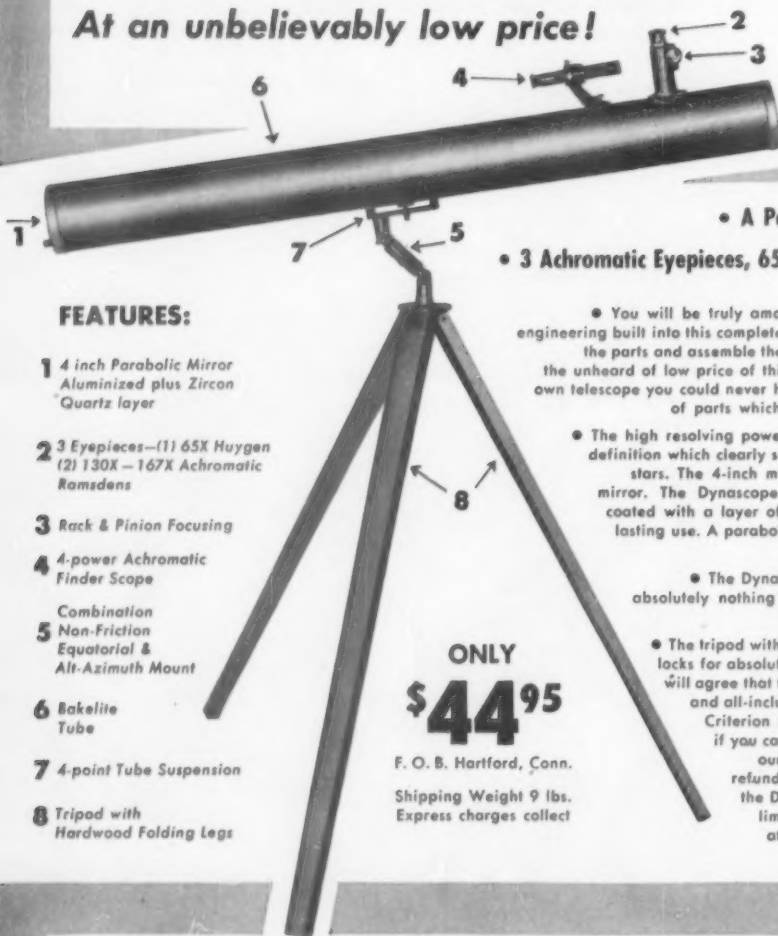
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## MEDICINE

# Urge Tobacco Control

**Dr. Alton Ochsner urges Federal control of tobacco in book warning of dangers from smoking. Suggests ten-point program to help in quitting.**

► TOBACCO SHOULD be put under the same kind of Federal regulations that now protect consumers of alcoholic beverages and drugs. And the tobacco industry should support efforts to have this done.

So declares Dr. Alton Ochsner, New Orleans surgeon and lung cancer specialist, in "Smoking and Cancer: A Doctor's Report." (See p. 332.)

Death from lung cancer at about the age of 55, if you have not died earlier from something else, is only one of the risks of tobacco smoking, Dr. Ochsner points out.

Quadruple amputation, that is amputation of both hands and both feet, or perhaps both legs and both arms, is another risk to the heavy smoker which Dr. Ochsner warns of.

Here are others: Death from heart disease. Death from a circulatory ailment. Death from an apoplectic stroke due to cerebral hemorrhage. Blindness from nicotine amblyopia.

"There are even indications that if you are a man, you may become impotent; if a woman, sterile," Dr. Ochsner states.

Loss of sense of taste and smell, nervousness and irritability, bad digestion, asthma, and diseases of the nose, throat and voice box are still other results of heavy smoking.

Dr. Ochsner thinks there should be no tobacco smoking at all. Moderate and light smoking, he points out, are only slightly less dangerous than heavy smoking.

He does not, however, urge complete Federal prohibition of tobacco, like the alcoholic beverage prohibition of the 1920's. But he thinks cigarettes should be properly labelled, as alcoholic beverages and drugs are, so that the smoker will have the "information about the active poisons in tobacco to which he is entitled."

Cigarette advertising, he says, should warn smokers against the dangers of tobacco abuse, as alcoholic beverage advertising warns drinkers.

Testimonial advertising should be outlawed completely by the industry, he advises.

The industry, he further advises, should do all it can to discourage the use of cigarette dispensing machines, to protect children. He calls the machines "one-armed addiction pushers which, in effect, abrogate state and local laws against the sale of cigarettes to minors."

Dr. Ochsner does not think much of the tobacco industry's professed determination to learn the truth about smoking and health through support of research. Its program of research, he points out, includes areas already sufficiently investigated and leaves out the "critical" ones having to do

with how to make smoking less of a lung cancer and heart death threat.

Further measure of the industry's interest in the relation of smoking to health may be seen, Dr. Ochsner points out, in the fact that this \$5,500,000,000 a year business appropriated \$500,000 for the first year of research support.

Finally, Dr. Ochsner does not think the measures he suggests are going to "ruin" the cigarette industry.

"Not," he states, "as long as there are smokers who will deliberately suffer quadruple amputation, rather than heed the warning to quit smoking—or else."

A ten-point program to help you stop smoking is given by Dr. Ochsner:

1. "Stop smoking abruptly, completely and permanently." Tapering off is harder, leads to relapses which in turn cause feelings of frustration, humiliation and guilt.

2. "Know why you smoke." Most of the

reasons smokers give, that it quiets their nerves, relieves fatigue, makes them feel more grown up or more at ease socially, are not sound ones.

3. "Build up your resolution."

4. "Burn your bridges to the habit." That means throwing away all the ash trays, lighters and so on, as well as the half empty pack of cigarettes, the pipes, holders and cigars.

5. "Time your break." It may be easier to start your no-smoking future when you have a cold or other illness that lessens your appetite for tobacco, or when you are away from home and your usual smoking companions.

6. "Disregard the brief withdrawal symptoms." After the first 36 hours you will begin to feel better.

7. "Adopt substitute habits." Reach for a candy, fruit, drink of water, or take a walk instead of a smoke.

8. "Psychologize yourself."

9. "Count your blessings and proclaim them." The blessings are the better spirits, energy and appetite and lessened coughing and sniffing.

10. "Help others to free themselves." Smokers spread their addiction like measles, often unconsciously, but the improved health and self-discipline of the ex-smoker is catching, too.

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**ELEVEN TIMES SOUND'S SPEED**—Dr. Henry T. Nagamatsu, research fellow at the California Institute of Technology, is shown here at the test section of a new hypersonic wind tunnel in which air speeds 11 times that of sound have been achieved. The tunnel, built under an Army Ordnance Corps contract, is used for fundamental research in the hypersonic region. The side of the test section has been removed to show a model in place (left center of the section) and the thin slot ahead of it through which the air expands into the test section and is accelerated. An object moving at Mach 11 through the atmosphere at sea level, where the speed of sound, Mach 1, is about 760 miles an hour, would be traveling 8,360 mph.

## TECHNOLOGY

# Plastic for Future Houses

Scientists foresee houses of future built of plastic foam and others that bloom as flowers do. Floating agricultural fields at the earth's equator also suggested.

► THE WALLS of your house in the "blue-sky future" may be foamed into place rather than hammered and nailed, or laid by high-priced brick masons, but that day is a long way off.

This was one of several futuristic ideas presented to a conference in Washington on Plastics in Building, sponsored by The Society of the Plastics Industry, Inc., the Manufacturing Chemists' Association, Inc., and the Building Research Advisory Board of the National Academy of Sciences.

Other experts described houses that bloom like daisy buds to invite the freshness of springtime into your living room, houses built into hillsides for atomic reasons, and floating agricultural fields girdling the earth's equator in a 1,000-mile-wide belt.

Raymond F. Boyer, director of the physical research laboratory for The Dow Chemical Company of Midland, Mich., said he believes it may be possible to build houses with a plastic foam.

He pictured a device resembling a garbage can that would be the plastic "concrete mixer." It would generate foam and force it through a hose to a workman.

Using only rudimentary forms to contain the plastic until it set, the workman would build up the wall quickly. The experts would focus the radiation of a high-voltage X-ray machine or radioactive cobalt 60 on the wall to raise its structural strength by cross-linking the plastic molecules.

Mr. Boyer said he does not know just how all this is to be done in reality, but that the idea might be worth considering.

James W. Fitzgibbon, executive vice-president of Geodesics, Inc., of Raleigh, N. C., showed how geometric forms can be linked in such a way that a twist to the "roof" makes the flexible house unfold like a daisy bud.

One of his theoretical designs resembled a pyramid with a pole sticking out the top. When the pole was shoved down, the three walls of the pyramid flipped outward.

Dr. Johan A. Bjorksten, president of Bjorksten Research Laboratories of Madison, Wis., described a house his company is building. When finished, it will be 95% underground.

The cost of this house, designed for a hillside, is estimated to be less than for its equivalent above ground. Maintenance and heating costs should be far less, he said. And it will have excellent resistance to atomic shock waves.

Properly used plastic films will keep the house from becoming dank. Large picture windows jutting through the hillside will admit light to the structure.

Looking into the "blue-sky future," Dr.

Bjorksten said rapid population increases may be threatened by a limited world food supply. Since man cannot make more farm land, humanity is faced with three choices: Rigid birth control in all countries.

An atomic war "sufficiently intensive" to wipe out at least half of the earth's population.

Cultivation of the oceans.

Amplifying the last point, he said a band 500 miles on each side of the equator is almost perpetually calm and the sun shines almost every day. The temperature is "pretty steady" at 86 degrees Fahrenheit the year around.

"Development of extreme high-strength plastic films gives us a means by which it would be possible to utilize this immense belt for agricultural purposes," he said.

He described floating plastic stills, created under Department of Interior sponsorship, that convert salt water to fresh.

Fresh water from these stills could be used to cultivate plants floating in canoe-like plastic boats. He cited a man who already has such a garden plot floating in a lake.

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## DENTISTRY

## Prevent and Treat Bad Tooth Alignment

► METHODS to prevent bad tooth alignment and to correct the faulty bite and associated troubles from this condition were reported at the American Dental Association meeting in Miami.

Habits to guard against are thumb sucking, tongue thrusting, and leaning on the chin. This last habit may result in a whole segment of teeth being forced into a "cross-bite," Dr. Earl E. Shepard of Washington University School of Dentistry, St. Louis, warned.

In a survey of 476 children, Dr. Shepard reported, one out of every two had some form of faulty tooth alignment in the early stages.

Bad mouth habits are second only to heredity as a cause of the condition, he declared. Modern appliances to help break the habits have been developed, but these must be left in the mouth for at least six months to be effective.

Faulty bite due to improper alignment of teeth is an important cause of periodontal disease, the breakdown of gums and tissue that support the teeth, Dr. J. Lewis Blass of New York said.

The condition places unequal stress on

the teeth. It creates openings between the teeth and the gums into which food can be impacted, one of the first steps in the development of periodontal disease.

An uneven bite can frequently be corrected by grinding down high points on the biting surfaces of certain teeth. By distributing the force of the bite among all teeth, unusually heavy stresses on single teeth are relieved, Dr. Blass pointed out.

The technique known as "occlusal equilibration" also may tend to reduce decay by eliminating food impaction areas and smoothing chewing surfaces.

The teeth are not dulled. Their chewing efficiency is in fact increased by the improved contact between the teeth.

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## NUTRITION

# U. S. Turkey Crop Biggest

Record turkey year also sees drop in average size of the bird, now only about four and a half pounds. Estimated U. S. production for 1954 is 61,045,000 turkeys.

► AMERICAN HOUSEWIVES can look forward to a five-cent per pound drop in the price of turkeys this Thanksgiving, as well as a drop in the weight of the average dressed turkey and more turkeys than ever in the history of the United States to choose from.

The U. S. Department of Agriculture has reported that 1954 will be the biggest turkey year on record, with an estimated production of 61,045,000 birds. This is a nine percent increase over the production last year, and a one percent increase over the last record year of 1952, when 60,868,000 turkeys were raised.

It was also reported that the price of the average turkey will come down five cents a pound.

Along with the drop in the price, there has been a noticeable drop in the average weight of today's turkeys. Whereas in 1951 the average bird weighed six and one-half pounds, today's fowl averages only four and one-half pounds. The Department explained that poultrymen are raising more and more of the Beltsville White turkey, which is a smaller bird.

The production of more than 60,000,000 turkeys this year will mean more than \$300,000,000 to the nation's turkey raisers. More than one-half of these turkeys will be bought by American housewives during the months of November and December alone.

California is the nation's largest turkey producer, having raised 9,899,000 last year. California was followed in production by Minnesota, which produced 5,617,000 birds,

and then Virginia and Texas. Massachusetts, where the turkey became the Thanksgiving symbol for the nation, produced only 633,000 turkeys.

Although the Agriculture Department reported that the modern trend is toward chilled or frozen turkeys this year, it is still possible in many states for the head of the house to go out and bag a wild turkey. In 1953, it was estimated that hunters killed more than 50,000 of the estimated 465,000 wild turkeys in the United States.

Both Pennsylvania and Texas boasted a wild turkey population of over 70,000, while Ohio counted a total of 18. Not one of the six New England states listed a wild turkey for 1953 as being free and roaming the wooded areas of those states.

It takes four pounds of feed to make one pound of turkey. The largest birds in the country's butcher shops and poultry markets average about 26 pounds dressed, while the Beltsville White averages only four and one-half pounds dressed. Every year, however, someone reports a bird weighing more than 50 pounds.

The United States is not the only producer of turkeys, although the first turkeys were of American origin. Latest figures for foreign production of turkeys were: Canada, 2,500,000; France, 2,300,000; Ireland, 211,000; Italy, 2,000,000; United Kingdom, 1,390,000; Yugoslavia, 484,000; Formosa, 166,000, and the Philippines, 50,000, to name just a few.

Turkey, of course, produced 1,285,000 turkeys for Turkey.

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## PHYSIOLOGY

# Talking With Your Ears

► THE EAR is a human two-way radio, and if experiments being conducted at the Ohio State University Speech and Hearing Clinic prove successful, pilots of the future may be talking through their ears, as well as hearing through them.

The first systematic research on the human ability to emit speech through the ear is now being conducted at the Clinic. The scientists report that everyone produces ear-emitted speech in the course of normal talking.

Dr. Henry M. Moser, director of the clinic, said that the research has not yet determined exactly how speech is emitted from the ear, but that it may be conducted through the Eustachian tube or possibly through the bones of the head.

The problem confronting the Ohio scientists is how to separate the ear-emitted sounds from the mouth-emitted sounds. This is being done by having persons speak into a baffle box that is lined with several layers of a sound-absorbing material to trap the mouth-emitted sounds.

The speaker and the listener wear stethoscopic earpieces. The listener is then able to hear speech faintly but intelligibly that is emitted through the ears, traveling through the glass and rubber tubing connected between the two persons. If the rubber tube is pinched, the listener hears nothing.

Research on ear speech began at the University when Herbert Oyer, a graduate student in speech science, observed ear-

emitted speech while working in an experimental phonetics laboratory. The practical applications of being able to talk ear-to-ear, the scientists point out, might:

1. Eliminate the use of oral microphones, leaving a pilot's hands free for other tasks.
2. Reduce engine noise and breath noise, thereby reducing interference.
3. Solve problems that arise in installing a microphone in an oxygen mask, or other equipment.

The scientists believe that the study will improve communications systems now used where noise conditions offer a problem, such as in aircraft.

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## VETERINARY MEDICINE

# Baby Lambs Born After Surgical Ova Transfer

► THERE ARE baby lambs born to ewes that are not their mothers, as the result of the surgical transfer of ova from one breed of sheep to another at Cambridge, England.

Duplicating in lambs what had been done earlier in rabbits, G. L. Hunter of the University of Cambridge's School of Agriculture and C. E. Adams and L. E. Rowson of the British Agricultural Research Council transferred successfully ova by surgical techniques between Border Leicester sheep and lighter-weight Welsh Mountain breed.

Lambs fathered by the same breed males as the real mothers showed the birth-weight characteristics of the true parents and not the "foster mothers." The research is reported in *Nature* (Nov. 6).

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## MEDICINE

# More Rapid Detection Of Liver Diseases

► RADIOACTIVE DYE and a scintillation counter, cousin of the well-known Geiger counter, have been combined to provide a test that will diagnose liver diseases more rapidly and more accurately.

The test was developed by doctors of the University of California at Los Angeles Atomic Energy Project and the Los Angeles Veterans Administration Center.

The dye is injected intravenously. The scintillation counter, placed over the liver area, measures radioactivity of the dye and thus indicates the rates of uptake and excretion by the organ.

Patients with normal liver function show a rapid uptake of the dye for 20 to 30 minutes. Then it is cleared from the organ in about two hours.

A significantly slower rate of uptake indicates a functional impairment of liver cells and/or poor circulation to the organ, characteristic of cirrhosis of the liver.

If the liver is slow in clearing itself of the dye, this would suggest a blocking of the bile ducts. Such a pattern is found in gall bladder disease with stones blocking the bile passage.

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## MEDICINE

# Whooping Cough Eased

► THE WHOOPS of whooping cough are markedly checked, both in number and severity, when children are given the antibiotic, Terramycin.

The decrease in number and severity of whoops shows up by the third day, Drs. Gustav Gavis, Samuel Weinberg, Benj. Newman and Solomon Chazas of New York reported at the Second Annual Symposium on Antibiotics. The symposium is sponsored by the U. S. Food and Drug Administration and the Journal, *Antibiotics and Chemotherapy*. (See SNL, Nov. 6, p. 291.)

Vomiting, often a distressing feature in early whooping cough, did not occur after the second day of Terramycin treatment. The children got well faster and there were no secondary bacterial complications.

Terramycin is also helping children with the kidney disease, nephrosis. It can be safely given over long periods of time and acts as a highly effective prophylactic in preventing pneumonia and streptococci infections which are most feared complications in children with nephrosis. The results of this use of Terramycin were reported by Drs. Harriet G. Guild and Don C. Petersen of the Johns Hopkins Hospital, Baltimore.

More news on antibiotics against cancer: Injected into the arteries of patients with moderately advanced and far advanced cancers of the mouth, throat, sinuses and uterus, they clear up the usual heavy infections in such cases and thus allow better results from X-ray, radium and nitrogen

mustard treatment, Drs. J. W. Grossman, J. G. Riley, R. E. MacQuigg and H. W. Merideth of the Lovelace Clinic and Foundation, Albuquerque, N. Mex., reported.

Less than a fifth of over 5,000 crude filtrates from soil microorganisms showed any effectiveness against a mouse cancer in the seven-year search for an anti-cancer agent from such antibiotic material, Drs. H. Christine Reilly, C. Chester Stock, Sonja M. Buckley, Donald A. Clarke and C. P. Rhoads of Sloan-Kettering Institute for Cancer Research and Cornell University Graduate School of Medical Sciences, New York, reported.

Ability of the antibiotic materials to check mouse cancer did not go with their ability to check microorganisms.

## New Disease Fighters

► FROM THE same golden-colored mold that produces Aureomycin and Achromycin antibiotics, several new disease-fighting agents have been obtained. As yet unnamed, the new antibiotics are an antifungal agent and several antibacterial agents.

Six scientists from the Lederle Laboratories Division of American Cyanamid Co. reported on the substances, not yet completely isolated and identified.

They are Drs. J. H. Martin, A. J. Shay, L. M. Pruess, J. N. Porter, J. H. Mowat and N. Bohonos.

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dodging technique, Dr. Meyerhoff said that he has no evidence of this.

"There isn't one in 20 who tries for graduate work to evade the draft," he said. "In the first place, they don't evade the draft. They merely delay it."

"And it's more of a sacrifice to stick to school until training is complete than to enter service at a younger age. But certain scientific and engineering training must be continuous, or else you lose men. Their interest may be diverted in the meantime, or they may forget the complex mathematics necessary in the field."

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## PARASITOLOGY

## Report First Drug Cure Of Acute Toxoplasmosis

► THE FIRST successful treatment of acute toxoplasmosis in a human was announced by Drs. R. F. Wettingfeld and R. H. Rowe of the Public Health Service Hospital, Memphis, and Dr. Don E. Eyles of the National Institutes of Health, Bethesda, Md., at the meeting of the American Society of Tropical Medicine and Hygiene in Memphis.

The patient was a woman laboratory technician who had been working on experimental toxoplasmosis in the Memphis laboratory of the National Institutes of Health.

After a month of vague illness, she became acutely sick with fever and swollen lymph glands. Her associates at the National Institutes of Health had previously found that a combination of a triple sulfa drug and the anti-malaria drug, Daraprim, were highly active against toxoplasmosis in mice.

So they gave the same drug treatment to their sick technician.

Her response to treatment was "immediate." Within 48 hours, her fever had disappeared and other signs of improvement followed. She had a prolonged period of convalescence but was finally discharged as "cured."

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## PARASITOLOGY

## Tumor-Producing Virus Spread by Mosquitoes

► A TUMOR-PRODUCING virus is spread by mosquitoes, Dr. Lawrence Kilham and Herbert T. Dalmat of the National Institutes of Health, Bethesda, Md., reported at the American Society of Parasitologists meeting in Memphis.

The virus is the one that causes Shope fibroma, or tumor, among cottontail rabbits. The mosquitoes that spread the tumor virus belong to the same species, *Aedes aegypti*, that spreads yellow fever and virus encephalitis.

Unlike the situation in yellow fever, however, there is no tumor virus in the mosquito salivary glands. Instead, the tumor virus is localized entirely in the head parts.

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## GENERAL SCIENCE

# New Student Draft Rights

► GRADUATE STUDENTS in the fields of science have been urged to see their campus Selective Service representatives immediately should they get their draft notices before completing their training.

Dr. Howard A. Meyerhoff of the Scientific Manpower Commission said that "compromises have been reached" which are designed to enable the better student to finish his schooling without draft interruption.

"The student has to be sharper," he said, "but once he has passed that Selective Service qualification test with a score of 80 or better, he should be left alone. The same thing is true for the man who stands in the top fourth of his class."

Dr. Meyerhoff referred to Executive Order 10,562 signed in September by President Eisenhower. It was an outgrowth of negotiations between the scientific Manpower Commission and the Engineering Manpower Commission with the Office of Defense Mobilization.

The order raises the qualifications a young man needs to postpone military service, but it is designed to enable qualifying

students to finish training without the "worry of reclassification dangling over their heads."

When it appears that the Executive Order has been overlooked by local draft boards, the student should see his campus Selective Service representative to start the wheels turning, Dr. Meyerhoff said. The campus representative will get in touch with the draft board involved, and is urged to report the case to the Scientific Manpower Commission.

"We've worked hard to get this situation cleared up," Dr. Meyerhoff said, "and we're going to do our best to see that it works."

The "situation" to which Dr. Meyerhoff referred has been reflected in recent college enrollment figures. A SMC study involving 19 institutions revealed that, between May and October of 1953, at least 2,000 advanced graduate students in science and engineering "had been denied the opportunity to complete their studies." Dr. Meyerhoff said the situation still exists.

When asked whether students were using advanced studies as an academic draft-



**RARE FIND**—Farm pond in southern Ohio yields more than 20 bullfrogs each having from three to eight legs. No explanation is yet available, although the phenomenon is believed to be a natural one since a radioactivity check gave negative results.

## BIOLOGY

## Many-Legged Frogs

► **MORE THAN 20** bullfrogs each with from three to eight legs have been found in a farm pond in southern Ohio.

This rare natural-occurring phenomenon was reported by Dr. R. A. Hefner, professor of zoology at Miami University, Oxford, Ohio.

Multiple limbs have been induced on frogs artificially, but wholesale duplication of appendages in the natural state remains unique. The many-legged frogs of Ohio vary in abnormality from one extra hind leg below the knee to as many as six hind legs on a single animal.

No explanation for the abnormality occurring in such large numbers has been given. It is thought that the frogs are from a single clutch of eggs deposited in the farm pond by a lone female.

The frogs were identified as bullfrogs, *Rana catesbeiana*.

Because there is work in atomic energy research being done in the area, the Miami University scientists checked the mud and waters of the pond for radioactivity with negative results.

It is known that a tadpole whose limb bud has been nipped by a fish can grow another appendage before it reaches the frog stage of its development, thereby having more than the normal number of limbs.

The frogs were located by Alan Linn, a zoology student at Miami University. At

the present time, the Ohio zoologists are studying the muscle control and nerve supply provided by these frogs to the extra appendages.

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## CHEMISTRY

## Gas at \$1,440 Gallon For Anti-Knock Research

► **THE MOST** expensive gasoline in the world is being manufactured in connection with discovering the behavior of fuel in internal combustion engines.

Approximately \$1,400 per gallon is the average cost of a total volume of 422 gallons of 296 pure hydrocarbons produced, purified and examined during an American Petroleum Institute study.

Dr. Cecil E. Boord of Ohio State University and Dr. Wheeler G. Lovell of the Ethyl Corp., Detroit, reported progress on making the pure gasoline components and determining their knocking components in test engines to the American Petroleum Institute meeting in Chicago.

They found that for noncyclic paraffins and olefins the presence of a methylene group,  $\text{CH}_2$ , has a deleterious influence on the hydrocarbon's knock resistance.

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## PHYSICS

## Early Greek Athletes Used Jet Principle

► **STONE WEIGHTS** were used by sixth century B.C. athletes in an application of a principle of physics that plays today an important role in jet propulsion.

Greek broad jumpers held a weight, or "halter," in each hand behind their backs. When they started their jump, they swung the weights forward so that their legs and arms were almost parallel when in mid-air. Just before landing, the weights were swung back again. This caused the jumper's legs to shoot forward, thereby lengthening the distance of the leap.

The physical principle, conservation of momentum, as applied to early sports, is discussed in the *American Journal of Physics* (Oct.) by Prof. E. C. Watson of the California Institute of Technology.

An early sportswriter by the name of Aristotle, commented on this by writing: "That is why athletes jump farther with weights in their hands than without."

Science News Letter, November 20, 1954

## ASTRONOMY

## Stars 200,000 Times Sun's Brightness Found

► **"CONSTELLATIONS"** OF blue stars in the Large Cloud of Magellan, the nearest galaxy to our own Milky Way system of stars and nebulae, contain a few supergiant stars more than 200,000 times as bright as our sun.

This is a "remarkable" situation, Drs. Harlow Shapley and Virginia McKibben Nail of Harvard University, Cambridge, Mass., reported to the National Academy of Sciences meeting at Columbia University. It means that just one of these extremely luminous blue stars sends out more energy than is emitted "by all the tens of thousands of giant and average stars in the average globular star cluster."

Drs. Shapley and Nail also reported that they have discovered that many of the supergiant stars are "reddish, variable and in radiation exceed the sun 50,000 times."

The Magellanic constellations in which the very hot blue stars are found are each composed of a score of supergiant stars similar to those in the well-known winter constellation of Orion, the giant hunter.

An unexpected result of the astronomers' Magellanic Cloud survey was the discovery that the variable stars known as cepheids in the west end of the Large Cloud's stellar axis are larger, brighter and have a longer period than those in the center or at the east end of the axis.

As photographic and radio telescope techniques for studying this nearby galaxy are improved, Drs. Shapley and Nail predicted that astronomers will "unravel both the form and the inner turbulences of this important galaxy."

Science News Letter, November 20, 1954



## MEDICINE

## Bigger Radioactive Blast For Cancer of Pancreas

► A WAY to deliver a bigger radioactive blast at cancer of the pancreas has been developed by Dr. Paul Harper of the University of Chicago.

Treatment of cancer at this site has heretofore been "unsatisfactory," Dr. Harper points out.

His method is to thread a fine, polyethylene tubing around and through the cancer. This is done during a surgical operation in which the abdomen is opened. The ends of the tubing are allowed to project outside the body after the surgical wound has been closed. Then radioactive iodine in liquid form is inserted in the tubing and the two ends are filled with either air or mercury and sealed.

The radioactive iodine can be left in the patient until it loses its radioactivity, which is a period of about eight days. Or it can be withdrawn if further surgery is needed. After the treatment is completed, the tubing can be left in the patient's body since it causes no difficulty.

Four of six patients treated so far have died, but in three of these it was found that the radiation had markedly decreased the size of the cancer. The remaining two patients, treated only recently, are still alive.

With the new treatment, as much as 8,000 or 9,000 roentgens of radiation can be delivered directly to the tumor. This dose is far above the tolerance level for treatment by external irradiation.

Dr. Harper reported his new method to the American College of Surgeons meeting in Atlantic City.

Science News Letter, November 20, 1954

## HEMATOLOGY

## Simple Blood Test Aids Heart Victims

► PATIENTS IN danger of blood clots in the heart's arteries or other blood vessels can now be given anti-blood clotting treatment at home, thanks to a simplified blood test developed by Dr. Benjamin Manchester of George Washington University School of Medicine, Washington.

Home treatment with anti-blood clotting chemicals of 300 patients with the heart disease, coronary thrombosis, is reported by Dr. Manchester and Dr. Boris Rabkin, also of George Washington School of Medicine, in *Circulation* (Nov. 1). This is believed the first report of such a large number of patients getting anti-clotting treatment at home.

Patients whose blood is too likely to form dangerous clots heretofore have been treated in hospitals. The reason is that blood tests must be made every day while anti-clotting medicines are given, to make sure the blood is not getting to a dangerously low clotting stage. In that case, the patient might develop serious spontaneous hemorrhages.

Previous tests for the blood's clotting abil-

ity, Dr. Manchester explained, have required about a teaspoonful of blood taken from a vein every day. Most patients could safely spare that amount of blood, but sticking a needle into a vein every day requires considerable skill and even with that, the veins in time may collapse so that it becomes more and more difficult to get the blood needed for the test.

Dr. Manchester's test is made on a few drops of blood from pricking a finger or ear lobe. The blood's clotting time can be determined in 14 to 18 seconds instead of the usual four to six minutes because he adds to the blood from the finger a small amount of the chemical, thromboplastin. This speeds the clotting reaction.

Science News Letter, November 20, 1954

## BIOCHEMISTRY

## Enzyme Chemical Sought As Nerve Gas Antidote

► A MUCH better antidote than atropine to nerve gases and certain highly poisonous insecticides may come from research reported by Dr. Irwin B. Wilson of Columbia University College of Physicians and Surgeons, New York, at the meeting of the National Academy of Sciences in New York.

The antidote Dr. Wilson seeks will reactivate the enzyme chemical that nerve gases put out of action. This enzyme chemical is acetylcholinesterase. It is vital for nerve function. Heretofore, scientists have thought that the enzyme was irrevocably destroyed by the nerve gases and related chemicals.

But, Dr. Wilson said, the development of enzyme theory clarified the mechanism by which the acetylcholinesterase is blocked and suggested a means of reactivating it.

The best reactivators, he said, are compounds such as nicotinedihydroxyamic acid methiodide that contain a nucleophilic group and a cationic ammonium structure.

So far he has not found any such chemicals that are fast enough to be used as an antidote in case of nerve gas or insecticide poisonings. But the fact that he has got chemicals which work in the test tube, restoring the poisoned enzyme to normal, encourages him to hope that he will be able to find one which can be used as an antidote.

Science News Letter, November 20, 1954

## GENERAL SCIENCE

## Research Laboratories Serving Industry Listed

► RESEARCH LABORATORIES serving industry as "cradles" of new ideas and developments are being listed anew by the National Academy of Sciences and the National Research Council, Washington.

Officials of these organizations are on the search both for new laboratories and for laboratories that might have been overlooked in previous directories.

Science News Letter, November 20, 1954

# IN SCIENCE

## AGRICULTURE

## Once Obscure Clover Seen as Useful Crop

► A SPECIES of clover, long in obscurity because its bacteria were unable to fix nitrogen, may well become a new and highly useful legume to the United States.

Discovery of nitrogen-fixing bacteria from Turkey to be used with the clover, *Trifolium ambiguum*, was reported to the Soil Science Society of America meeting in St. Paul, Minn., by Dr. Lewis W. Erdman and Ura Mae Means of the U.S. Department of Agriculture.

The Kura clover, as it is sometimes called, has been the object of many years of research in an effort to find the right bacteria to team up with it.

Certain strains of rhizobia, which are nitrogen-gathering, root-nodule bacteria, obtained from Turkey have now been found to be effective.

In the past, the Kura clover had been found with nodulated roots, but the bacteria causing them were found to be parasitic. That is, they gathered no atmospheric nitrogen but merely lived off the plant's roots.

The bacteriologists reported that this new combination will make the clover a valuable addition to the present stock of forage and soil-building legumes.

Science News Letter, November 20, 1954

## PUBLIC SAFETY

## Plastics Cause Serious Hand Injury to Workers

► WORKERS IN chemical plants that manufacture plastics face a new health danger, that of seriously damaged hands, Dr. Joseph M. Baker of Springfield, Mass., warned the meeting of the American Society of Plastic and Reconstructive Surgery in Hollywood, Fla.

In each of two cases, liquid plastic material being forced into a mold was injected accidentally into the palm of the worker's left hand, Dr. Baker reported.

The material immediately solidified and, although it was possible to remove it, it caused extensive damage to muscles and tendons of the hand. Swelling, numbness, intense pain and loss of motion in the fingers were early results of the injuries.

One patient, Dr. Baker said, was hospitalized for 47 days, with further rehabilitation necessary to restore function before he was able to return to work. The other patient, hospitalized 40 days, was returned later to the hospital for skin grafting, and faces future surgery of bone and tendon grafts before hand function is restored.

Science News Letter, November 20, 1954



# CE FIELDS

## SURGERY

### Face-Lifting Results Last Average of Five Years

► FIVE YEARS of more youthful appearance is what the average aging person gets from a face-lifting operation, three plastic surgeons reported at the meeting of the American Society of Plastic and Reconstructive Surgery in Hollywood, Fla.

The three are Drs. Gustave Aufricht of Lenox Hill Hospital, New York, Albert G. Davis, associate professor of surgery, Stanford University Medical School, San Francisco, and James B. Johnson, assistant professor of surgery at the University of Southern California, Los Angeles.

The plastic surgeons call the face-lifting operation "cosmetic meloplasty." They call it beneficial for aging persons with "legitimate economic or social reasons for seeking to appear more youthful." But they warn that patients should be chosen with care and that those who are unstable emotionally should be avoided.

Best results are obtained in persons with too much skin on the upper neck and upper eyelids, the surgeons said.

Besides the temporary nature of the results, the operation has the following limitations: It cannot remove all lines and wrinkles on the aging face. Horizontal forehead lines and perpendicular lines on the lips cannot be removed. Wrinkles in cheeks cannot be completely removed because radical tightening of the skin produces a fixed, pulled expression.

The patient undergoing face-lifting will be in the hospital for three days and absent from work probably for two weeks. A general anesthetic is given for the operation. The fine line scars of the operation are unnoticeable or hidden by the hair.

Science News Letter, November 20, 1954

## ENGINEERING

### Pipelines to Carry Gasoline in War

► TEMPORARY PIPELINES laid over mountains, valleys and streams with speed and low cost will carry the oil and gasoline needed in future military operations or war, Maj. Gen. Paul F. Yount, U. S. Army chief of transportation, predicted at the American Petroleum Institute meeting in Chicago.

The use of pipeline in the combat zone is a tremendous asset to mobility, Gen. Yount said. As the attack advances, supply lines lengthen.

Supplies move forward mainly by rail, supplemented by truck and, to a certain increasing degree, by air. Convoys crowd the highways. Freight cars are usually in short supply. Pipelines relieve the highway

pressures, reduce rail car shortages, and thus help to keep the other modes of transportation fluid.

A pipeline uses little labor, he explained. Only 10% of a pipeline operation cost is due to personnel, commercially, while on the average 60% is charged to personnel costs in railway operations.

A pipeline, unlike any other transportation, is relatively indifferent to weather. It gives little difficulty with terrain. And if well camouflaged, it is less vulnerable to enemy action. Roads and rails cannot be effectively hidden from sight, but pipelines can carry their cargo with the greatest of secrecy and security.

In case of withdrawal, a pipeline is the easiest type of transportation line to destroy, Gen. Yount said. It takes something to wreck a highway and mangle a rail line when you move out, so the enemy will not be able to make use of it.

With the pipeline, no explosives are necessary. It carries with it its own means of destruction.

Science News Letter, November 20, 1954

## ZOOLOGY

### The Taming of the Shrew May Help in Virus War

► THEY ARE trying to tame the shrew at the University of Malaya in an effort to breed this squirrel-like animal for use as a laboratory host for experiments with human virus diseases.

A colony of tree shrews from the Federation of Malaya and Thailand are now being maintained and bred at the University, Prof. J. R. Hendrickson of the zoology department reports in *Nature* (Oct. 23).

Both the Institute for Medical Research, Kuala Lumpur, Malaya, and the U. S. Army Medical Research Unit in South-East Asia are interested in the breeding experiments.

The animals are being fed a diet of bananas and papayas together with an "insect substitute" mixture containing high-protein cereal, beef extract, honey, fresh eggs, powdered milk, dog biscuits for roughage, cod liver oil, vitamin E, calcium lactate and salt. Tree shrews normally feed on soft fruits and insects.

Prof. Hendrickson observed that in no case has it been possible to keep two male shrews in the same cage.

A male and one or more non-pregnant females live in reasonable harmony. The female, however, has proven more dominant despite her smaller size.

Pregnancy has produced marked anti-social aggressiveness in the females observed. An aggressive attitude toward another individual, once started, appears to remain fixed and often leads to a fatal feud.

The breeding experiments have not produced many young to date. This has been attributed to the female shrews' refusal to mate, sterility, spontaneous abortion, litter killing and neglect of the young.

A litter of two, born on Aug. 20, is now being weaned.

Science News Letter, November 20, 1954

## TECHNOLOGY

### "Waste Basket" Furnace Reaches Jet Temperature

#### See Front Cover

► FIERCE HEAT, over 2,800 degrees Fahrenheit, has been produced in a furnace the size of an ordinary waste basket.

The small oven, designed by General Electric engineers, can simulate the intense heat in the combustion chamber of jet engines. It is shown on the cover of this week's *SCIENCE NEWS LETTER*.

The device is being used to calibrate sensitive iridium thermometers for the first time in such high temperature ranges.

These special thermometers, called thermocouples, will permit accurate measurement of temperature changes in jet engines at the company's Aircraft Gas Turbine Development Department in Evandale, Ohio.

A small electric current and a six-inch coil of iridium, one of the most precious metals, generate a fiery white dot of heat used for the tests. Iridium, a very brittle, silvery-white metal of the platinum family, is used because it is one of the few elements that can withstand such high heat.

Until recently, the supply of the rare metal which costs \$175 an ounce was insufficient.

The thermocouples used in the experiments are probes made of iridium and iridium alloy.

The high temperatures are measured by noting the electric potential generated by the action of heat on the dual-metal probe.

Science News Letter, November 20, 1954

## VETERINARY MEDICINE

### New Jersey Fowls Dying Of Mysterious Disease

► CHICKENS IN New Jersey are succumbing to a mysterious disease of the liver and the death toll has been as high as 40% in some flocks.

Characterized by red flecks in the liver, the new disease was described by the American Veterinary Medical Association, Chicago.

The disease has been noted only in chickens eight weeks old or older. Symptoms are lowered egg production, a blue discoloration of the skin and droopiness. Pullets of laying age have been attacked most frequently in outbreaks, but the Association reported that hens and cockerels may be attacked too.

Losses may persist in a flock for several months, but usually subside after two to four weeks.

Cause of the disease is unknown. It may occur in one pen of pullets without appearing in an adjacent pen where the feeding and management are the same. Treatment has not been successful and recoveries often happen without change in either feed or management.

Science News Letter, November 20, 1954

## NUTRITION

# Thanksgiving Today

**American in food and spirit: modern preservation techniques have not changed the bill of fare since the Pilgrims. Housewives can still provide an all-American menu.**

By HOWARD SIMONS

► WE ARE eating Thanksgiving dinners basically the same as those served by the Pilgrims centuries ago. Only the methods used by the family in gathering the dinner items have changed markedly.

The early settlers, together with their Indian neighbors, had to spend weeks of hunting, picking and digging to reap the foods we now associate with this day of thanks.

The modern American housewife can now harvest an entire Thanksgiving dinner in a matter of minutes from her frozen food locker and pantry shelf.

However, the introduction of the most scientific means of food preservation known to man has not altered the fact that the average household eats a Thanksgiving dinner of predominantly American origin and production.

Not even the prospect of dishes from all over the world that are available packaged, canned, dehydrated, powdered, bottled, frozen or even kept fresh by atomic radiation has caused the American family to forsake the all-American Thanksgiving dinner menu.

Turkey, cranberries, both white and sweet potatoes, many kinds of beans, squash, pumpkin, tapioca, corn, sweet corn and popcorn, peppers, avocado, cocoa and chocolate, oysters, pineapple, chestnuts, peanuts, Brazil nuts and cashew nuts are strictly American in origin.

## Tastes Have Changed

It is doubtful, however, if a Pilgrim or Indian invited to taste many of these foods today would be able to identify them as the same kinds of foods that he served in the 17th century.

They are, of course, the same types of foods, but cross-breeding and improvements made over the centuries by scientists and agriculturalists have changed them, like the Beltsville white turkey and hybrid corn, to such a degree that they no longer taste much like the original foods.

Paradoxically, many of these same foods that are American in origin, were reintroduced into America under the guise of other names, such as the Hawaiian pineapple, the Irish potato and the Turkish cucumber, which is the American pumpkin.

The turkey, traditional symbol for Thanksgiving and the usual main dinner course, has a dual claim to its 100% citizenship, being both native born and naturalized.

This puzzling situation arises from the fact that our domestic turkeys are not the descendants, but cousins of the wild turkeys that the Pilgrims hunted and ate. The wild turkeys, some of which still survive in a few of our wooded regions, are somewhat smaller than the domesticated bird.

The domestic fowl that finds its way into the Thanksgiving roasting oven is descended from the Mexican species that the Aztecs tamed and which their Spanish conquerors carried back home with them.

Then, it was reintroduced from Europe and has become well-established in the United States. From this re-imported turkey, hybrid birds are now bred here. It is this improved turkey that the American housewife buys, already trimmed, in cans, or fresh or frozen.

Cranberries, on the other hand, have remained as American as the native-born wild turkey. Cranberries are found only on the

American continent, where they thrive in the low, wet lands of northeastern United States.

Contrary to its popular name, the Irish potato is not at all Irish in origin, but Peruvian.

The white potato was called Irish because it was widely cultivated on the Emerald Isle, and Irish immigrants who came to the United States in the 1700's brought large quantities of the white potato with them.

However, long before these immigrants carried the potato across the Atlantic from the Old World to the New, it had found its way across the Atlantic and back again by a different route.

Shortly after Columbus, the potato was shipped from its original home in Peru to Spain. After years of cultivation in Spain, it found its way to other European countries, including the British Isles.

The British sent the potato homeward again by shipping it off to Bermuda. From Bermuda, it was introduced into the young Virginia Colony.

"Fixin's" are indispensable to the Thanksgiving dinner and sweet potatoes, known as "taters" in the South, are indispensable



**MODERN THANKSGIVING**—Although the Thanksgiving menu has not changed very much since the Pilgrims, the method of harvest has. The modern American housewife can gather the necessary bill of fare in a matter of minutes from the frozen food locker and pantry shelf, as Anna Karavangelos of the college of home economics and Richard McKee of the college of physical education at the University of Maryland have done for this photograph.

to the "fixin's." And like the cranberries and wild turkey, sweet potatoes are American-born and bred.

If the turkey symbolizes Thanksgiving itself, corn symbolizes the warmth and good feeling of Thanksgiving, for it was the gift of corn from the Indians to the Pilgrims and thence to the rest of the world that remains as America's greatest agricultural gift.

And, whether the corn you use for the Thanksgiving corn bread is frozen, canned or packaged, its true American ancestry remains hidden in its ancient use and the changes that it has undergone through long centuries of cultivation. Even if the wild parent has managed to survive somewhere in the Americas, it would be difficult to recognize it as such.

### Travels of Pumpkin

The pumpkin, which delights children in October windows and makes them even happier on a pie plate in November, has a tale of travel that is more than equal to the turkey and the potato.

Fifty years after Columbus, the American pumpkin had become so popular in Europe that it had lost its American identity and had become known as the Turkish cucumber. Its popularity and seeds spread the world over and the modern varieties have become mixed with foreign stocks from Africa and Asia. However, the yellow pumpkin that fills our Thanksgiving pies is still of straight American ancestry.

Even without trimming the meal with such American foods as tomatoes, many kinds of beans, squash, avocados or peppers for vegetables and salads, or tapioca and pineapple for dessert, or cocoa and chocolate for a beverage, the usual Thanksgiving bill of fare with roast turkey, cranberry sauce, potatoes, white and sweet, corn bread and pumpkin pie is American enough.

### Natural Containers

Of course the many nuts like cashew, Brazil and peanuts were American in origin, but the American chestnut has been virtually wiped out by a blight and the chestnuts in the turkey stuffing will be of eastern Asiatic origin.

Curiously enough in this modern world, the nuts are the only item on the menu which have remained in their natural containers, preserved and secure.

The Thanksgiving items, whether wrapped, trimmed, pre-cooked, frozen, just-add-water items or enveloped in tin, provide a purely American feast.

Like the people these foods represent, the foods have traveled to many lands, and in each they have brought nourishment and symbolized hope where there was darkness and hunger. They have gone from and returned to the place of their origin and, like the land and its people of their origin, the foods have provided a melting pot of good-will.

Science News Letter, November 20, 1954

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# Books of the Week

For the editorial information of our readers, books received for review since last week's issue are listed. For convenient purchase of any U. S. book in print, send a remittance to cover retail price (postage will be paid) to Book Department, Science Service, 1719 N Street, N.W., Washington 6, D. C. Request free publications direct from publisher, not from Science Service.

**AUTOMOBILE FACTS AND FIGURES—Automobile Manufacturers Association**, 34th ed., 80 p., illus., paper, free upon request to publisher, 320 New Center Building, Detroit 2, Mich. Statistics of the industry.

**BATHYPELAGIC NEMERTANS OF THE PACIFIC OCEAN—Wesley R. Coc—University of California Press**, 55 p., illus., paper, 75 cents. Reporting collections of little known animals of the deep obtained in Monterey Bay, California, together with those secured by several expeditions of the Scripps Institution of Oceanography.

**DETERIORATION OF MATERIALS: Causes and Preventive Techniques—Glenn A. Greathouse and Carl J. Wessel, Eds.—Reinhold**, 835 p., illus., \$12.00. Prepared under the joint auspices of the Services Technical Committee of the Department of Defense and the Prevention of Deterioration Center.

**AN EXPERIMENTAL INVESTIGATION OF THE MECHANICS OF PLASTIC DEFORMATION OF METALS—E. G. Thomson, C. T. Yang and J. B. Bierbower—University of California Press**, 56 p., illus., paper, 75 cents. Describing the technique for calculating the infinitesimal strain or strain rate and the stress distributions in an axially symmetrical metal part during a three-dimensional forming operation.

**HANDBOOK OF TEXTILE FIBERS—Milton Harris, Ed.—Harris Research Laboratories**, 356 p., illus., \$12.50. Bringing together for reference purposes a wealth of data on natural and artificial fibers, their physical and chemical characteristics, as well as economic and manufacturing information.

**HELPING YOUR CHILD'S EMOTIONAL GROWTH—Anna W. M. Wolf and Suzanne Szasz, with introduction by Milton J. E. Senn—Doubleday**, 305 p., illus., \$5.00. Telling, with text and excellent photographs, of some of the problems that often perplex parents as their child develops from infancy to school age.

**INDUCTION AND ANALOGY IN MATHEMATICS: Volume I of Mathematics and Plausible Reasoning—G. Polya—Princeton University Press**, 280 p., illus., \$5.50, both volumes \$9.00. The creative mathematician, says the author, is a good guesser first and a good prover afterward. This first volume is devoted to intelligent guessing.

**THE NATION LOOKS AT ITS RESOURCES: Report of the Mid-Century Conference on Resources for**

the Future, Washington, D. C., December 2, 3, 4, 1953—Henry Jarrett, Ed.—*Resources for the Future, Inc.*, 418 p., paper, \$5.00. Presenting high points of the discussion at a conference attended by 1,600 men and women concerned with problems developing from the mounting pressure on our natural resources.

**PATTERNS OF PLAUSIBLE INFERENCE: Volume II of Mathematics and Plausible Reasoning—G. Polya—Princeton University Press**, 190 p., \$4.50, both volumes \$9.00. This volume adds to the material included in Volume I, but is not dependent upon it.

**PRACTICAL REFRACTOMETRY: By Means of the Microscope—Roy M. Allen—Cargille Laboratories**, 59 p., illus., paper, \$1.00. An elementary text on the determination of indices of refraction of solids by means of the microscope. Although written primarily for mineralogists, the methods described can be of value to almost any user of the microscope.

**PREHISTORIC ANIMALS—William E. Scheele—World Pub.**, 125 p., illus., \$4.95. The director of the Cleveland Museum of Natural History tells of the weird animals that inhabited our world for the first 500,000,000 years of life.

**THE PSYCHOLOGICAL VARIABLES IN HUMAN CANCER: A Symposium Presented at the Veterans Administration Hospital, Long Beach, California, October 23, 1953—Joseph A. Gengerelli and Frank J. Kirkner, Eds.—University of California Press**, 135 p., \$3.00. Reporting investigations into the relationships between personality makeup and cancer.

**SMOKING AND CANCER: A Doctor's Report—Alton Ochsner, with foreword by Everts A. Graham—Messner**, 86 p., illus., \$2.00. An eminent cancer specialist reports his findings on the relation between smoking and lung cancer. He believes that 95% of deaths from lung cancer will be traceable to smoking. (See p. 323.)

**THIRTY-SEVENTH ANNUAL REPORT OF THE NATIONAL RESEARCH COUNCIL OF CANADA 1953-54: Including the Annual Report of the Canadian Patents and Development Limited—National Research Council of Canada**, 50 p., paper, free upon request direct to publisher, Ottawa, Canada. Containing, in addition to the fiscal reports required by law, a description in non-technical language of the many research projects under investigation. In French and English.

Science News Letter, November 20, 1954

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**OCEANOGRAPHY**

# Ice Island Formation

► THE FLOATING ice islands of the Arctic may form from the bottom up, rather than from the top down, as is now thought.

This upside down phenomenon, which represents something entirely new to glaciology, is discussed in *Geographical Review* (Oct.) by Dr. Frank Debenham, emeritus professor of geography at Cambridge University, England.

Dr. Debenham suggests that ice islands are really unusual forms of sea ice, produced

by salt water freezing onto a thin layer of coastal ice anchored in a fiord.

Ice islands, the first of which was discovered by the U. S. Air Force in 1946, are very large and durable. The Air Force has used them as floating experimental and weather stations. Recent reports have indicated that the Russians are doing likewise.

A characteristic of the ice island that plays an important part in its identification is the fact that its surface is corrugated.

The origin of the islands has been found to be a 200-mile stretch of the polar coast of Ellesmere Island, which is due west of Greenland. It is here that the only ribbed ice of its kind in the polar region is found.

Dr. Debenham claims that this region, which is known as a "polar desert," has so little snowfall and so much thaw that it would be virtually impossible for enough ice to freeze and remain frozen onto the coastal ice.

He believes that coastal ice, moored in narrow fiords, are laminated over a period of centuries by the freezing of the salt water underneath.

The English Arctic expert theorizes that the characteristic corrugations are caused by the slight, but regular pressure of the tides, as it acts upon the ice anchored in the fiord.

Research by the Air Force has shown that at regular intervals in the thickness of the ice there appear veins of sand, mud and stone. Dr. Debenham credits these as having been picked up by the freezing sea water from the fiord bottom and cemented to the bottom of the island.

A microscopic examination of these "distinct layers of dirt" may show whether the material is of land or marine origin.

The islands tend to break away when they are subjected to a catastrophic weather change.

Science News Letter, November 20, 1954

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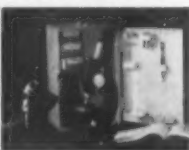
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# BOTANY

## NATURE RAMBLINGS



### Chestnuts and Chinquapins

► **GATHERING CHESTNUTS** after the first frost brought the burrs to the ground was once as traditionally American as a Thanksgiving Day turkey garnished with cranberry sauce. Indeed, the feast day bird was often stuffed with chestnut dressing.

However, the American chestnut has been forcibly removed from our forests by a fungus-caused blight and most chestnuts bought on today's market are imported from Italy or Spain. The few homegrown varieties are from Oriental trees imported to this country.

Beginning about the turn of the present century with a little focus of infection around New York, the imported Oriental pest that eliminated the chestnut spread by leaps, until today all that is left of America's once beautiful native chestnuts are a few scattered sick trees in western Tennessee and northern Mississippi. There are also a scattered few healthy trees left in northern Midwest states and on the Pacific Coast.

In the past 40 years government scientists and forest experts have been at work trying to develop a new chestnut to replace the native type.

The nuts are pleasant eating for human beings and important food for such wildlife as wild turkeys, but that is the smallest party of the story. Bark and wood are about our most important source of tannin for making leather, and the chestnut tree is useful for this as well as in places where

resistance to decay is important, as in telephone posts and railroad ties.

Tourists through the Allegheny highlands and in other forested parts of this country, see many naked skeletons standing out above the woods, monuments of the great tragedy that struck the American chestnut. These dead stands of blight-killed trees are being "mined" for their wood, but their numbers grow smaller every year.

Although believed to have been spared at first, the fact finally developed that the deadly fungus disease was attacking chinquapins, the native shrubby or small tree species related to the chestnut. Working with some of these native small trees, with blight resistant chestnut species brought in from the Orient where the blight itself came from, and with sprouts that have sprung up from killed chestnuts, some fairly resistant hybrids have been obtained.

Within a span of years, it is expected that hybrid American-grown chestnuts may once more be available for their traditional task of stuffing the traditional bird.

Science News Letter, November 20, 1954

## Questions

**DENTISTRY**—What habits cause bad alignment of teeth? p. 324.

□ □ □

**ENGINEERING**—What are advantages of pipelines for wartime transportation of gasoline? p. 329.

□ □ □

**NUTRITION**—How many pounds of feed are needed to make one pound of turkey? p. 325.

□ □ □

**PHYSIOLOGY**—What would be the advantages for pilots of talking with their ears? p. 325.

□ □ □

**PUBLIC SAFETY**—How can plastics injure workers? p. 328.

□ □ □

**PHOTOGRAPHS**: Cover, General Electric Company; p. 323, Hank Hoag; p. 327, R. A. Hefner; p. 330, Fremont Davis; p. 336, Dodie.

## PHILOSOPHICAL LIBRARY BOOKS

□ **THE PAINTED MEN** by T. C. Lethbridge. This is the story of the Picta: a "people" who had been in the British Islands some 1600 years before William the Conqueror arrived, and whose history goes back beyond the Siege of Troy. Fully illustrated. \$6.00

□ **THE COMPOSITION AND ASSAYING OF MINERALS** by John Stewart Remington and Dr. Wilfrid Francis. In this guide to mineralogy the crystalline forms of numerous metallic minerals are referred to in the descriptions of the ores mentioned. \$8.50

□ **NUCLEAR PHYSICS** by Werner Heisenberg. Deals, among other things, with Bohr's theory, the periodic system and the extra-nuclear structure of atoms. The main subject of the book includes radioactivity, the binding energy of nuclei, nuclear structure, artificially induced nuclear transmutations and with the methods of observation and of producing nuclear transmutations. The book concludes with some account of the practical applications of nuclear physics. With 18 halftone illustrations and 32 line illustrations. \$4.75

□ **HISTORICAL ASPECTS OF ORGANIC EVOLUTION** by Philip H. Fothergill. This is the first book dealing with the "evolution of evolution"—that is, with the gradual development of the concept of biological change through the ages, and its application in various stages of man's understanding of physical world. \$6.00

□ **WATER** by Sir Cyril S. Fox. This volume provides the reader with an outline of the Science of Water, both in the academic and practical aspects of the subject; includes details regarding its utilization, its occurrence and its utilization. Illustrated. \$8.75

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□ **FATIGUE OF METALS** by R. Cazaud. Dr. Cazaud is well known and highly esteemed in research circles; he is regarded, not only in France but throughout the industrial world, as a leading authority on the fatigue of metals. \$12.50

□ **RELATIVITY AND REALITY** by E. G. Barter. A re-interpretation of anomalies appearing in the theories of relativity. \$4.75

□ **PLANT DISEASES** in Orchard, Nursery and Garden Crops by Ernest Gram and Anna Weber. Produced for the first time in an English edition from *Plantensydomme* by two Danish horticultural experts; a Danish work of world-wide reputation. Illustrated. \$18.50

□ **TREASURY OF PHILOSOPHY** edited by Dagobert D. Runes. One of the most comprehensive collections of philosophical writings ever published in one book, covering 500 B.C. to date. Much of the material appears here in English translation for the first time. \$15.00

□ **CLIMATE, VEGETATION AND MAN** by Leonard Hadow. In this book an attempt has been made to survey life in its climatic setting. Illustrated. \$4.75

□ **OUT OF MY LATER YEARS** by Albert Einstein. The book shows Einstein the philosopher, Einstein the scientist, and Einstein the man. \$4.75

□ **SCIENTIFIC AUTOBIOGRAPHY** and other papers by Max Planck. These last writings of the great physicist deal with problems that include true and fictitious issues in science; the meaning and limit of exact science; physics and causality; natural sciences and the religious world. Autobiographical notes reveal his personal and scientific development. \$3.75

□ **THE SOCIAL INSECTS** by O. W. Richards, D.Sc. Dr. Richards shows that the scientific approach has been able to lay bare far more of wonder and amazement than speculation or legend. "Warmly commended"—Julian Huxley. Illustrated. \$4.75

□ **ETHER AND ELECTRICITY** by Sir Edmund Whittaker. The first exhaustive history of the classical and modern theories of ether and electricity. Set of two volumes. \$17.50

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Science News Letter, November 20, 1954

✿ **PIPE HOLDER** for the car driver is made out of a magnetized rubber ring. A pipe not being smoked can be slipped through the ring which is held fast to the metal dashboard. Several rings make any metal, one-pound tobacco can a convenient pipe rack.

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✿ **STRIPPABLE POSTER-PAINT** is based on vinyl resin plastics and produces window signs that will withstand smearing by rain or fingers and will peel off without leaving a residue. This strippable sign-paint is particularly useful for outdoor signs on glass.

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✿ **FRYING PANS** made of aluminum are imported from Italy. Set of four, the smallest is five inches in diameter and the largest is seven inches. Crafted of heavy-gauge aluminum, they have black plastic insulated handles.

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✿ **ZIPPER PULL-UP** is especially designed to help women zip up long zippers without a breath-taking struggle. Made of brass, it works like grandmother's shoe button hook, as shown in the photograph.

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✿ **FLOATING RATTLE** for the baby's bath, this turtle-shaped toy also tells mother the temperature of baby's bath water. The turtle floats on the water, and the weights

used to keep the thermometer bulb well under the water provide an amusing rattle. It is made of non-scratching polystyrene plastic.

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✿ **LETTER SCALE** that fits into your pocket can weigh letters up to two ounces. This handy little pocket post-office fits snugly into a three-inch leather carrying case.

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Science News Letter, November 20, 1954

## Do You Know?

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Popcorn contains more energy units than 96% of all foods listed as edible by the U. S. Department of Agriculture.

The present annual rate of energy consumption in the U. S. is more than ten times that in 1854.

There are approximately 8,000,000 men in the United States whose color vision is defective.

An electronic instrument that accurately measures the energy and frequency of ocean waves has been developed.

The dairy cow requires 150 hours of the dairy farmer's labor per year, more than any other farm animal.

Jellyfish are not fish nor are they made of gelatin, but rather, they belong to a large group that includes sea anemones, corals, sea fans and hydroids.

One helicopter can move seven tons of supplies in one hour over a piece of terrain that would take 400 laborers 16 hours to do the same job.

Critical depletion of coal resources makes it necessary for Britain to be able to produce from atomic energy the electric power equivalent of 20,000,000 tons of coal a year by 1970.

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